

**Notice of Allowability**

Application No.

09/945,106

Examiner

Puneet Bhandari

Applicant(s)

ACEVES ET AL.

Art Unit

2666

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 06/16/2005.
2. ☒ The allowed claim(s) is/are 5-7, 10-14, 21-39 & 45-51 (renumbered as 1-29, respectively).
3. ☐ The drawings filed on \_\_\_\_\_ are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some\* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
- \* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto, or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL:

**Attachment(s)**

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08),  
Paper No./Mail Date 07/20/2005
4. ☐ Examiner's Comment Regarding Requirement for Deposit  
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☒ Interview Summary (PTO-413),  
Paper No./Mail Date 8/31/2005
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_

## DETAILED ACTION

### EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with John P. O'Banion (Reg. 33,201) on 08/26/2005.

The application has been amended as follows:

Claim **14** (currently amended): A TCP-based congestion management protocol for wireless data connection, comprising:

monitoring changes in a length of a transmission queue in a data connection;

designating packet loss as being due to congestion if said packet loss is preceded by at least two consecutive intervals of increasing queue length;

designating packet loss as random loss if said packet loss is not preceded by at least two consecutive intervals of increasing queue length;

applying a collision avoidance algorithm if packet loss is designated as due to congestion;

wherein each said interval comprises the amount of time it takes to transmit a window of data packets and receive acknowledgements corresponding to all data packets transmitted in the window;

wherein collision avoidance algorithm comprises

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reducing the sender's transmission window by one-half;

initializing a state count to zero;

transitioning from a state count zero to state count one if the length of said queue

increases during the next interval;

transitioning from the state count one to state count zero if the length of said queue

decreases or remains steady during next subsequent interval;

transitioning from a state count one to state count two if the length of said queue

increases during the next subsequent interval; and

designating packet loss as due to congestion if state count two is reached.

Claims (15-20) are cancelled.

Claim 39 (currently amended): A TCP-based congestion management protocol for wireless data connection, comprising:

monitoring changes in a length of a transmission queue in a data connection over an interval substantially equal to amount of time it takes to transmit a window of data packets and receive acknowledgements corresponding to all data packets transmitted in the window;

designating packet loss as being due to congestion if said packet loss is preceded by at least two consecutive intervals of increasing queue length;

designating packet loss as random loss if said packet loss is not preceded by at least two consecutive intervals of increasing queue length;

applying a collision avoidance algorithm if packet loss is designated as due to congestion;

wherein collision avoidance algorithm comprises  
reducing the sender's transmission window by one-half;  
initializing a state count to zero;  
transitioning from a state count zero to state count one if the length of said queue  
increases during the next interval;  
transitioning from the state count one to state count zero if the length of said queue  
decreases or remains steady during next subsequent interval;  
transitioning from a state count one to state count two if the length of said queue  
increases during the next subsequent interval; and  
designating packet loss as due to congestion if state count two is reached.

Claims (40-44) are cancelled.

***Allowable Subject Matter***

2. Claims 5-7, 10-14, 21-39 & 45-51 (renumbered as 1-29, respectively) allowed.
3. The following is a statement of reasons for the indication of allowable subject matter:

Regarding claims 5,14,30 & 39 the prior art of record does not explicitly teaches the features initializing a state count to zero; transitioning from a state count zero to state count one if the length of said queue increases during the next interval; transitioning from the state count one to state count zero if the length of said queue decreases or remains steady during next subsequent interval, transitioning from a state count one to state count two if the length of said queue increases during the next subsequent interval and designating packet loss as due to congestion if state count two is reached. These

limitations, in conjunction with all the limitations of the independent claims, have not been disclosed, taught or made obvious over the prior art of record.

Regarding claims **6-7**, these claims further limit claim 5 and hence are allowable over prior art of record.

Regarding claims **21-26**, these claims further limit claim 14 and hence are allowable over prior art of record.

Regarding claims **31-32**, these claims further limit claim 30 and hence are allowable over prior art of record.

Regarding claims **45-50**, these claims further limit claim 39 and hence are allowable over prior art of record.

Regarding claims **10,35 & 51** the prior art of record does not explicitly teaches the features determining whether the congestion is developing in the forward or reverse path of the connection, isolating forward throughput from congestion on the reverse path and wherein congestion is determined by calculating relative delay that one packet experiences with respect to another as it traverses the connection.

Regarding claims **11-13**, these claims further limit claim 10 and hence are allowable over prior art of record.

Regarding claims **36-38**, these claims further limit claim 35 and hence are allowable over prior art of record.

### ***Conclusion***

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4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure are Qaddoura (6,646,987), Yao et al. (6,097,697), Packet et al. (6,115,357) and Pogrebinsky( 6,445,681).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Puneet Bhandari whose telephone number is 571-272-2057. The examiner can normally be reached on 9.00 AM To 5.30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema Rao can be reached on 571-272-3174. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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Puneet Bhandari  
Examiner  
Art Unit 2666

*Seema S. Rao*  
SEEMA S. RAO 9/7/05  
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